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ABSTRACT

This teacher's guide includes four lessons dealing with animals and plants associated with ponds. Species discussed are selected because of their unusual means of adaptation to the pond environment. Each lesson includes suggestions on introducing the unit, discussion suggestions, blackboard activities, and activities with pictures and a magnetic board. Master activity sheets are provided. (RE)

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THE POND COMMUNITY

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March, 1977

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Gordon E. Rodeen, Ph.D.
Superintendent of Schools



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TO THE TEACHER

Studying a pond community can be of great interest to young people. The variety of plant and animal life found there fascinates youngsters. Such animals and plants are particularly interesting due to some of the unusual ways in which they adapt to their environment.

This booklet also serves as a Teacher's Guide. It is designed to be supported by a pond magnetic board. The visual aid consists of a pond outline drawn on an enameled metal panel and includes laminated drawings of the animals and plants mentioned in this booklet. The drawings are backed with magnetic material and placed in their proper place on the board as they are discussed. Unstapled student worksheets are attached. These can be used to make copies for your students.

The following list of animals and plants and their identification number is included for your convenience.

- #1 - fanwort
- #2 - coontail
- #3 - elodea
- #4 - eel grass
- #5 - white water lily
- #6 - pondweed
- #7 - arrowhead
- #8 - pickerelweed
- #9 - cattail
- #10 - duckweed
- #15 - crayfish
- #20 - snail
- #33 - backswimmer
- #37 - mosquito wiggler
- #39 - water boatman
- #41 - green frog
- #42 - leopard frog
- #43 - painted turtle
- #44 - snapping turtle
- #45 - large mouth bass
- #46 - bluegill
- #47 - carp
- #48 - bullhead catfish
- #49 - crappie
- #54 - mallard duck
- #57 - damselfly
- #58 - dragonfly
- #59 - mayfly

TEACHER'S MANUAL LEVELS I - III
USING THE POND COMMUNITY MAGNETIC BOARD

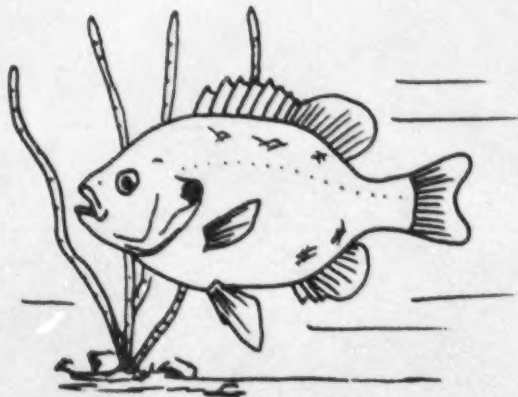
By: Shirley Conner
Illustrated by: Wayne Chumat

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March, 1977

LESSON ONE - The Fish of a Pond Community

1. Introduce the Unit on the Pond Community with a group discussion. Draw from the student's background about the pond by asking these questions:
 - a) What is a pond?
 - b) Where would we find a pond?
 - c) What would we do if we visited a pond? (Might go fishing.)
 - d) What is the size of a pond?
 - e) What is a community?
2. In discussing the community the teacher should bring out these points: A community is a group of people working together and depending on each other. A community can also be a group of plants and animals living together. It can be as small as a decaying log or as large as a desert. All living things must depend on each other to survive.
3. Write on the chalkboard Pond Community. Ask the question: "What would we see at the pond?" List the student's answers on the chalkboard.
4. Bring out the Magnetic Board. Say to the children: "Let's pretend that we have come to this pond to go fishing." Bring out the fish drawings (backed with magnetic tape) and let the children place them on the board. As they do so, you can give a brief explanation about each. (All magnetic board drawings are identified by number.)



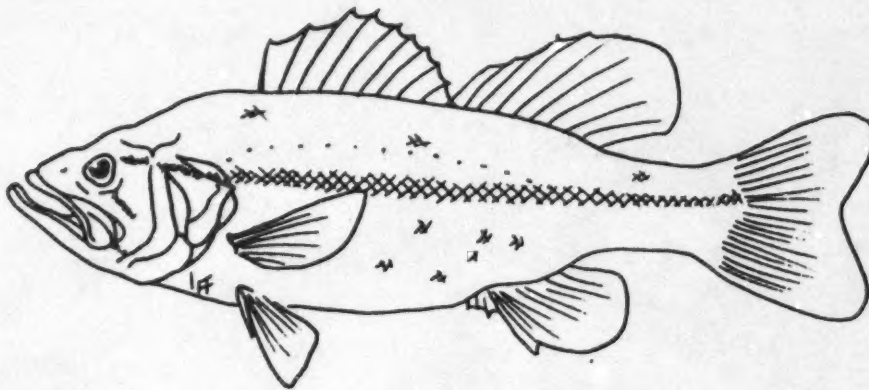
Bluegill #46

Bluegills are the most plentiful fish in our local ponds. They prefer worms and insects and in turn are eaten by larger fish such as bass and catfish. It is a tasty fish for eating.

LESSON ONE - continued

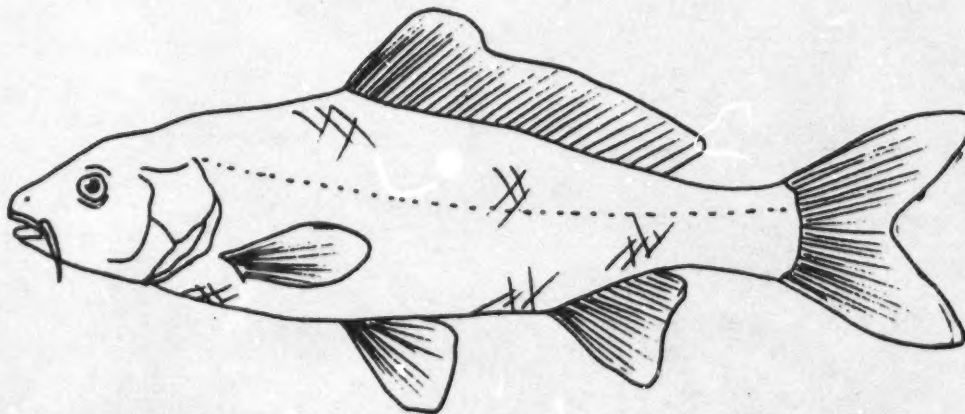
Bass

Most fishermen feel that the bass is the finest freshwater game fish. When caught it often "fights" by leaping out of the water. Bass eat minnows, worms, frogs and insects.



Carp

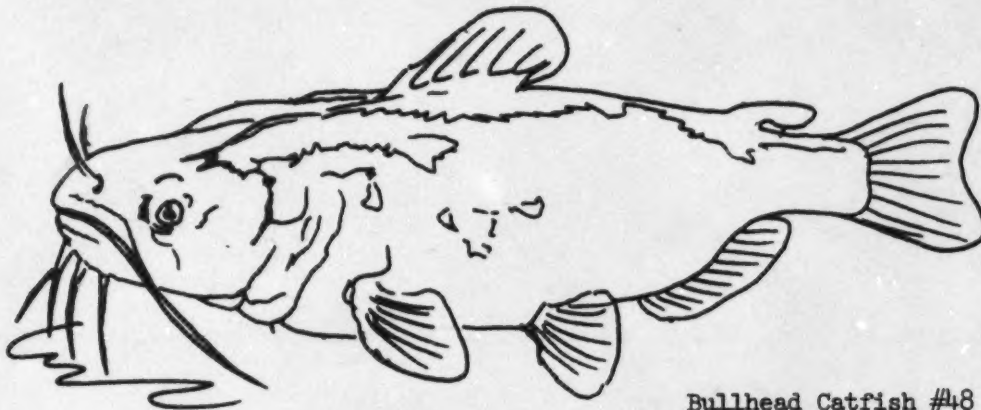
Carp are bottom feeders, living primarily on insects and dead animal life. They are the scavengers of the water. The Japanese consider this fish to be bold and honorable. Kites shaped like a carp are flown above Japanese homes on special days. There is generally one kite for each child in the family.



LESSON ONE - continued

Bullhead Catfish

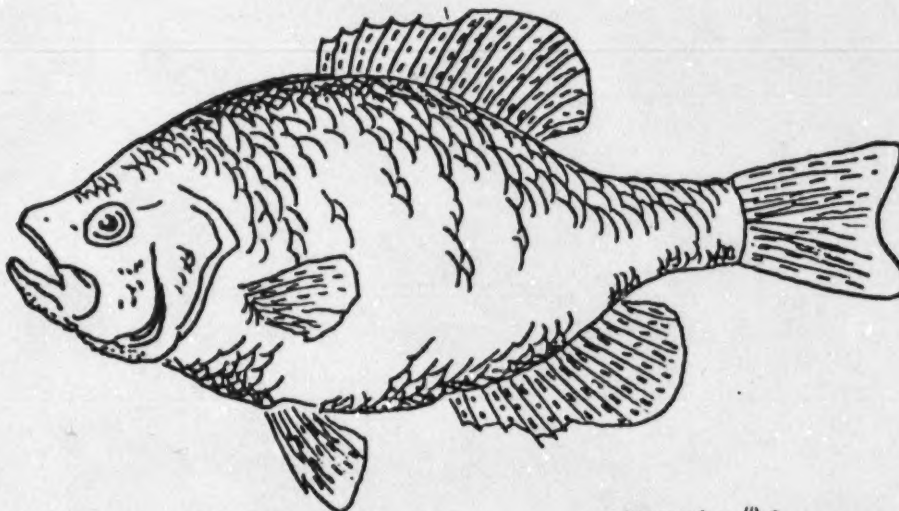
Most of the catfish that are caught in Ohio ponds are called bullheads. This catfish is small and can survive in mud even when the ponds dry up during dry spells. They feed on almost any kind of plant and animal life they can find on the bottom and are particularly fond of worms, snails, crayfish, insects, and minnows. The whiskers near the mouth are called barbels. These are their feelers. Catfish have sharp spines on their fins, so a fisherman must be careful when taking a catfish off the hook.



Bullhead Catfish #48

Crappie

This fish is good eating and fun to catch with a cane pole. They feed on insects, small fish and other small animals.

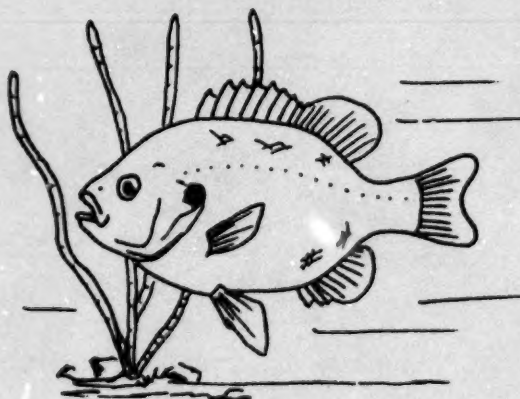
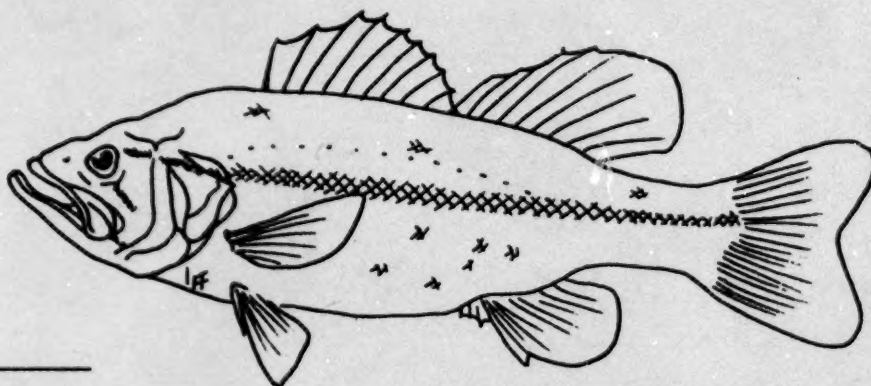
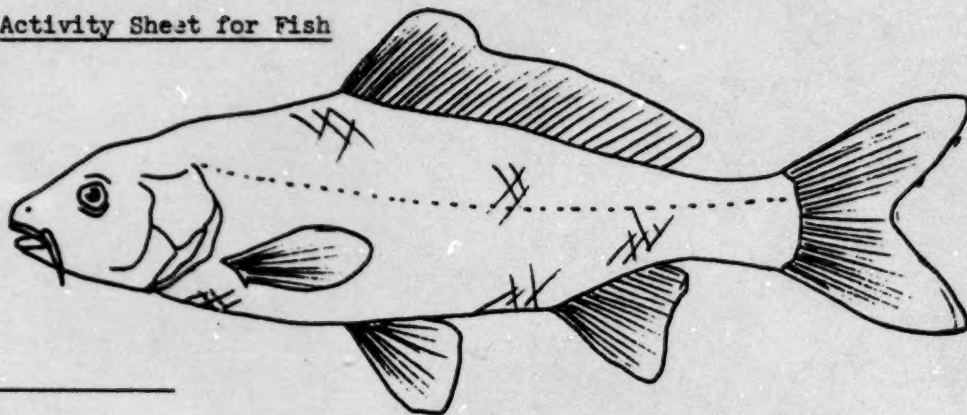


Crappie #49

LESSON ONE - continued

5. Ask the children:
 - a) How many of you have caught a fish?
 - b) What kind of fish did you catch?
 - c) What kind of tackle did you use to catch your fish?
6. Remove the fish and pass them to another group of youngsters and repeat.
7. Conclude the discussion with these thoughts: Ponds that have a good balance of natural food and fish produce healthy fast-growing fish. Ponds where there are too many fish and a shortage of food produce small "stunted" fish. A balanced pond will have several kinds of fish, the smaller serving as food for the larger, thus controlling the fish population.
8. Do the Name the Fish ditto.

LESSON ONE - Activity Sheet for Fish



Bluegill

Bass

Carp

LESSON TWO - Plant Life and Scavengers of the Pond

1. Review concepts: community, pond, dependent; have students add the fish they have studied to the magnetic board.
2. Show the children the magnetic drawings of pond plant life. As the youngsters put them up, discuss their proper place on the board.



Duckweed #10

On the surface of almost every pond, lives this small floating green plant. It floats on the surface with tiny roots hanging down into the water. Sometimes it is so thick on a pond that small birds can walk on it without falling through.

Fanwort, Elodea, Belgrass and Coontail

These plants can be found submerged beneath the water at the edge of the pond where it is shallow enough for the sun's rays to penetrate. They may also be found in the common aquarium.



Fanwort #1
(An aquarium plant)

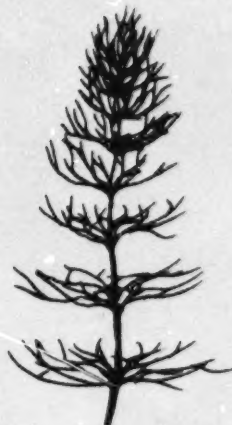


Elodea #3
(An aquarium plant)

LESSON TWO - continued



Eelgrass #1
(An aquarium plant)

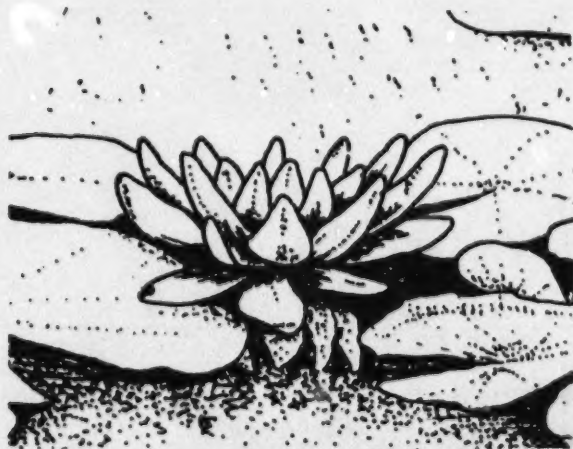


Coontail #2
(An aquarium plant)

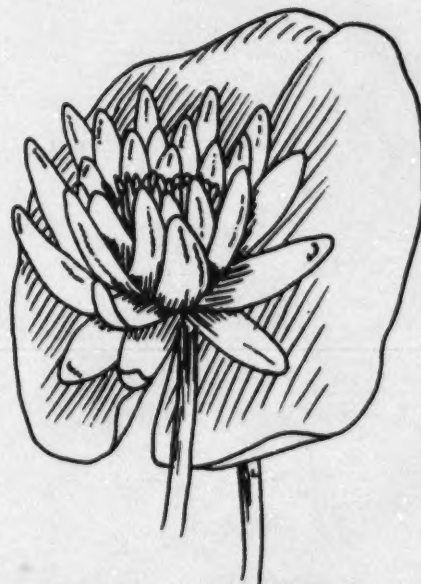
Eelgrass and coontail are plants that we often put into an aquarium. They root on the bottom of a pond and grow under water.

The White Water Lily

The white water lily is the most graceful and attractive of the pond plants. It is rooted to the bottom of the pond but its leaves float on the surface.



The White Water Lily Leaves float on the surface of the water. #5



The White Water Lily Bloom
#5

LESSON TWO - continued

Pondweed is important food for water fowl such as coots, swans, geese and ducks. Every part of the plant is eaten by some animal. It also roots on the bottom of a pond and has leaves that float to the top.



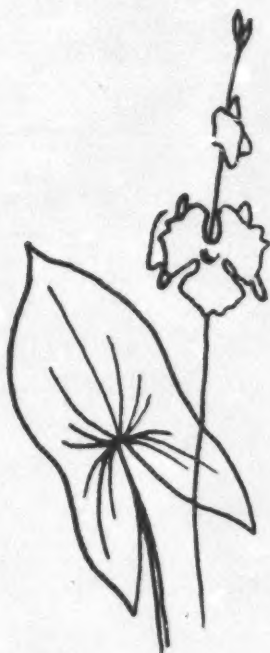
Pondweed #6



Pickerelweed #8

The cattail, pickerelweed and arrowhead are plants that have a root system anchored in the bottom of the pond and leaves extending above the water's surface. These plants are not only food, but they provide excellent protective covering for birds and animals.

LESSON TWO - continued



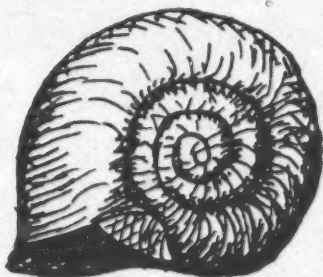
Arrowhead #7

The arrowhead and cattail are easily recognized living along the pond's shoreline.



Cattail #9

3. Ask the children to explain the term scavenger. It is an animal that eats animal and plant life that dies and falls to the bottom of the pond.
4. Introduce the magnetic drawings of the snail and crayfish.



Snails #20

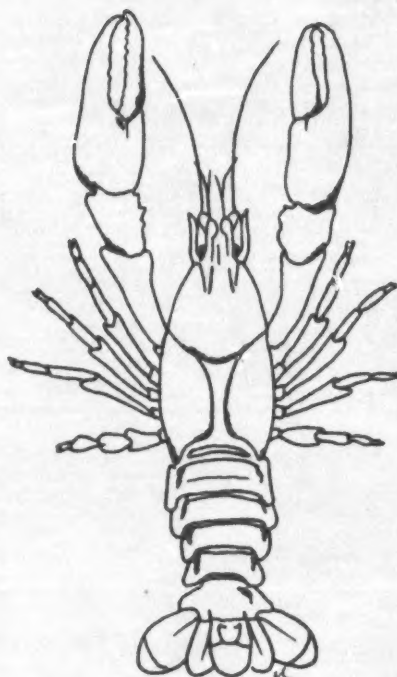
Snails provide the same type of cleaning service in a pond as they do in an aquarium. They eat the dead plants and algae.

LESSON TWO - continued

The crayfish is not only a scavenger and eats dead material at the bottom of a pond, it also captures animals such as worms, insects and small minnows. Its ability to capture other animals makes it a predator.

The crayfish has a skeleton that is on the outside of its body. As it grows, it sheds this outer skeleton and forms a new and larger one.

This animal is also unusual in another way. If it loses one of its claws, it will grow a new one.



Crayfish #15

5. Pass out plant life activity sheet.

LESSON TWO - Plant Life Activity Sheet

Matching (Draw lines from plant to name)



Water lily



Elgrass



Duckweed



Hornwort



Pondweed



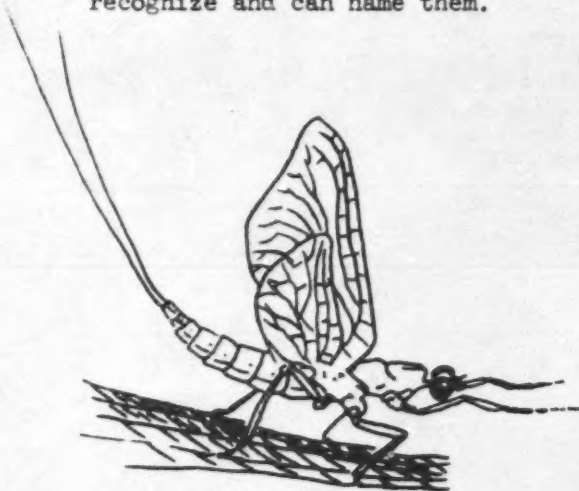
Arrowhead



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LESSON THREE - Insect Life, Frogs and Turtles

1. Have children add the following shapes to the board: fish, plant life, snail and crayfish.
2. Ask: "What kinds of food will we find at this pond to feed the creatures that live there?" Make a list of the childrens' answers on the board.
3. Have the students add the insects to the magnetic board and ask if they recognize and can name them.



Mayfly #59

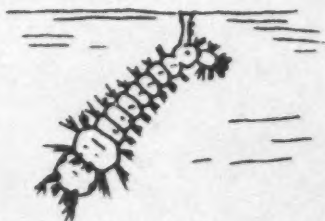


Damselfly #57



Dragonfly #58

Mosquito Wiggler #37

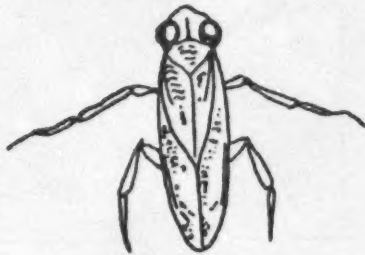


A very common insect found at the pond is the mosquito. When it is in the larva stage it is called the wiggler. It must come to the surface of the water to get air which it breathes through a tube.

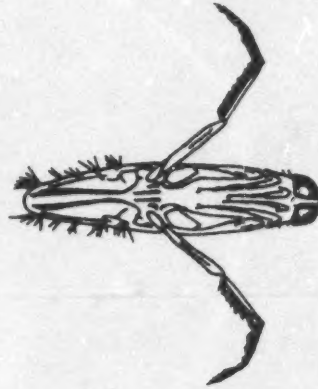
LESSON THREE - continued

Water Boatman and Backswimmer

These two insects are common in our ponds, you can even find them in your backyard swimming pool. They both have long, powerful legs. The backswimmer swims upside-down.

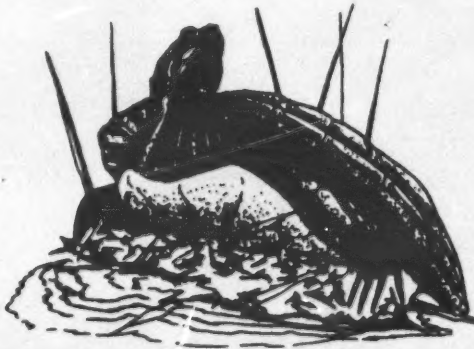


Water Boatman #39



Backswimmer #33

4. Add the drawing of the painted turtle to the magnetic board.

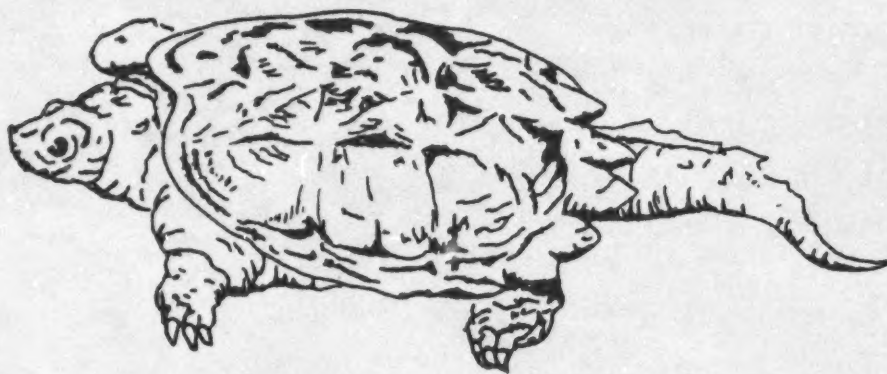


Painted Turtle #43

This turtle is shy and not easily captured, but can be seen sunning on logs in marshes and ponds. Turtles feed on frogs, fish and crayfish. They lay their eggs along the shoreline, where they are hatched by the warm sun.

5. Add the drawing of the snapping turtle to the magnetic board.

Remind the children to stay away from this turtle. It has powerful jaws and a vicious temper.

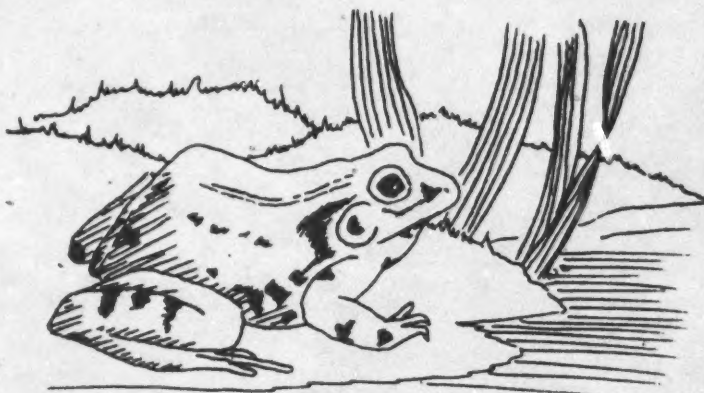


Snapping Turtle #44

6. Ask: "What animal brings music to the pond?" Have a child place the leopard frog and green frog on the magnetic board.



Leopard Frog #42

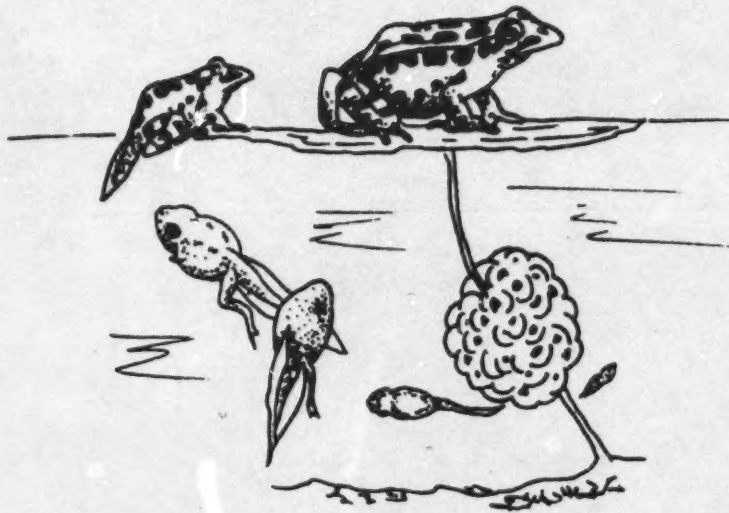


Green Frog #41

Two of the frogs found in Ohio ponds are the green frog and leopard frog. Frogs breathe through their wet skin which makes it possible for them to live in water. When on land, they breathe through their lungs. Frog eggs are laid in jelly-like masses and hatch into tadpoles. The tadpoles gradually grow legs; their tails become part of their body as they grow into mature frogs.

7. Pass out the ditto Life Cycle of a Frog and have the children color the drawing. Ask the students to draw arrows from stage to stage to show the sequence of development. On the bottom of the page, ask the students to write a few sentences about the frog.

Life Cycle of a Frog

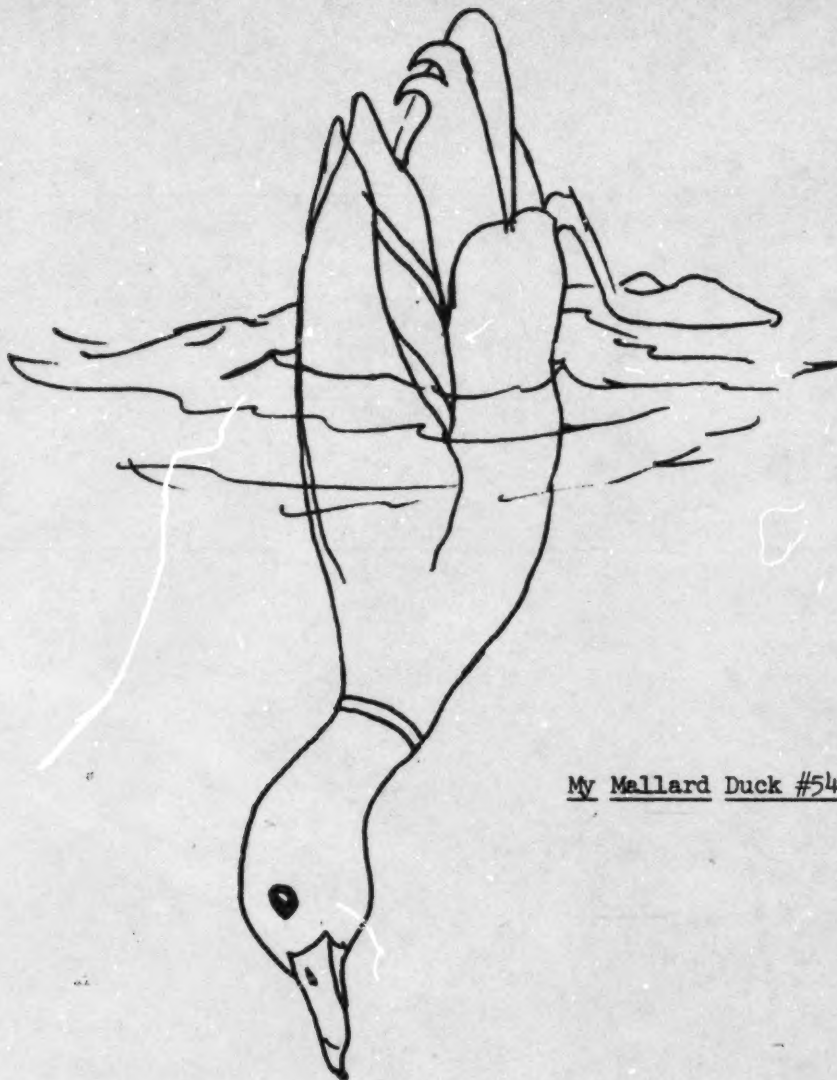


LESSON FOUR - Birds and Animals of the Pond

1. Have students add the following shapes to the magnetic board: fish, plant life, insects, turtles, frogs, snail and crayfish.
2. Ask: "What birds might we see around a pond?" Add these to the board: mallard duck, wood duck, American bittern, and great blue heron.
3. Pass out a ditto of the mallard duck. Have students color it as instructed.
4. Ask: "What animals might we find at the pond?" Add these: mink, raccoon, mice and muskrats.
5. Discuss a food chain.
6. Pass out food chain ditto. Discuss the animals and life in the picture and how each is dependent on each other.
7. Give the children a sheet of 12 x 18 inch manila paper and have them draw selected plants and animals found at a pond.
8. As a check-up test pass out the ditto Can You Find It? and see if the students can find and name the 12 items.

Additional Activities for a Pond Study

1. Creative writing. Have the children choose a pond creature and write a story about it. Example: "Freddie the Frog."
2. Crayon resist drawing of the pond. Use a thin blue-green water color wash for pond water.
3. Make large fish kites, stuff them with paper towels.
4. Read Swimmy by Leo Lionni.



My Mallard Duck #54

I am a male mallard duck diving for my dinner. Please color me!

My head is green.

My beak and legs are yellow.

My wings are brown.

My stomach gray.

The parts marked "x" are black.

The parts marked "o" are white.

The ring around my neck is white.

My eyes are black.

A SIMPLE FOOD CHAIN



Key

- A. Sun
- B. Green plants
- C. Tadpole
- D. Diving beetle
- E. Black-crowned night heron

Using arrows show how a food chain works.

Can you find it? Circle it.

1. Mallard duck
2. Duckweed
3. Cattail
4. Leopard frog
5. Turtle
6. Dragonfly
7. Fish
8. Eel grass
9. Yellow water lily
10. Pondweed
11. Arrowhead
12. Snail



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